

REMARKS

The applicants appreciate the Examiner's thorough examination of the application and request reexamination and reconsideration of the application in view of the following remarks.

The Examiner indicates that an Information Disclosure Statement is required which includes the references listed in the subject patent application. Accordingly, the applicants enclose herewith an Information Disclosure Statement and copies of the four (4) references cited in the IDS.

The Examiner objects to Figure 3 of the drawings stating that Figure 3 fails to provide the appropriate unit labels on each axis of each graph. The applicants have amended Figure 3 to include the unit labels inadvertently omitted, and enclose herewith a proposed drawing correction which includes the inserted unit labels.

The Examiner further objects to the specification stating that the specification fails to provide a detailed description of Figures 3 and 4. The applicants have amended the specification to include detailed descriptions of Figures 3 and 4. The applicants submit the amendments to the specification overcome the objection to the specification.

Additionally, the Examiner objects to claim 3 stating that there is a typographical error. The applicants have amended claim 3 and the corresponding portion of the specification to correct the typographical errors.

The Examiner rejects claim 1 under 35 USC §102(b) as being anticipated by U.S. Patent No. 5,590,051 to *Yokozawa*. The Examiner states that *Yokozawa* discloses a predictive algorithmic model for simulating photocatalytic reactions, and that *Yokozawa* teaches that the vapor phase reaction models are based on a vapor phase reaction wherein material gases are decomposed by light so that a molecule which is liable to react is produced (Col. 2, lines 1-24 of

Yokozawa). However, the section of *Yokozawa* that the Examiner is referencing actually describes a prior art process simulator in which a step coverage of a thin film formed by a conventional CVD process is calculated. See Col. 1, lines 56-63 of *Yokozawa*. The portion of *Yokozawa* cited by the Examiner refers to Figs. 9 and 10, which are labeled as “Prior Art”.

Yokozawa fails to disclose a predictive algorithmic model for simulating photocatalytic reactions as claimed by the applicants. *Yokozawa* only discloses simulating chemical vapor deposition reactions which involve pressure and temperature. See Col. 6, lines 11-19; Col. 6, lines 35-39; and Col. 11, lines 7-28 of *Yokozawa*.

As *Yokozawa* fails to disclose simulating photocatalytic reactions as claimed by the applicants, claim 1 is not anticipated by *Yokozawa*.

The Examiner further rejects claim 1 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,049,661 to *Hayakawa* in view of U.S. Patent No. 5,246,529 to *Fukasawa* or in view of “A Monte Carlo simulation of laser ablation during the laser pulse: C12(s) ablation dynamics for neutral beam etching” by *Suzuki*.

The Examiner states that *Hayakawa* discloses a predictive algorithmic model for simulating reactions of dry plasma chemical reactive ion etching, but fails to teach modeling a photocatalytic reaction as claimed by the applicants. The Examiner further states that *Fukasawa* and *Suzuki* both teach that plasma in plasma reaction chambers are promoted or stimulated by light, and that it would be obvious to one of ordinary skill in the art to combine the references.

However, the applicants submit that it would not be obvious to combine the references. *Hayakawa* only discloses a method of simulating the shape of a sample after traditional chemical vapor deposition or etching processing. As noted by the Examiner, a photocatalytic reaction includes light to excite gases. The method of simulating disclosed in *Hayakawa* fails to account

for the various process parameters associated with the use of light in combination with reactive gases. As *Hayakawa* fails to account for such parameters, the applicants submit that there would be no motivation to use the simulation method of *Hayakawa* to simulate a photocatalytic reaction as claimed by the applicants.

Accordingly, the applicants submit that claim 1 of the subject application is patentable over the cited references as there is no motivation to combine the references.

The Examiner also rejects claims 2 and 7 under 35 USC §103(a) as being unpatentable over *Yokozawa* in view of U.S. Patent No. 5,911,858 to *Ruffner*; *Hayakawa* in view of *Fukasawa*; and *Hayakawa* in view of *Suzuki* and further in view of *Ruffner*. As noted above, neither *Yokozawa* or *Hayakawa* disclose simulating photocatalytic reactions. Further, neither of these references account for the various process parameters associated with a photocatalytic reactions. The applicants submit that there is no motivation to modify either of the references to include that the input variables include wavelength or photocatalytic reaction variables (claim 2 of the subject application) or that the photocatalytic reactions are ultraviolet catalytic reactions (claim 7 of the subject application). Accordingly, claims 2 and 7 are patentable over the references for at least the reasons set forth above.

The Examiner also rejects claims 3-5 under 35 USC §103(a) as being unpatentable over *Yokozawa* in view of U.S. Patent No. 6,156,654 to *Ho*. As noted above, *Yokozawa* fails to disclose a model for simulating photocatalytic reactions as claimed by the applicants. Accordingly, claims 3-5 are patentable for at least the reasons set forth above.

The Examiner also rejects claim 6 under 35 USC §103(a) as being unpatentable over *Yokozawa* in view of U.S. Patent No. 5,421,934 to *Misaka*; *Hayakawa* in view of *Fukasawa* and further in view of *Misaka*; and *Hayakawa* in view of *Suzuki* and further in view of *Misaka*. As

noted above, neither *Yokozawa* or *Hayakawa* disclose simulating photocatalytic reactions.


Further, neither of these references account for the various process parameters associated with a photocatalytic reactions. Accordingly, claims 2 and 7 are patentable over the references for at least the reasons set forth above.

CONCLUSION

Each of the Examiner's rejections has been addressed or traversed. It is respectfully submitted that the application is in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts at (781) 890-5678.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'J. Shanske', written over a horizontal line.

Jason D. Shanske
Reg. No. 43,915

JDS/ok